

Voltage Sensor

To demonstrate the feasibility of measuring high voltages employing optical techniques, Lewis Research Center awarded a Small Business Innovation Research contract (see page 108) to SRICO, Inc, Powell, Ohio. The contract called for development of a fiber optic voltage sensor for use in management of aircraft and spacecraft electrical power systems; because it uses glass and light to sense and transmit electricity, fiber optic measurement offers potential for safety and accuracy improvement in voltage measurement.

SRICO successfully developed a NASA prototype device and, using private capital, developed a commercially marketable sensor for terrestrial applications. Among the many commercial uses SRICO cites measurement of electric field and voltage in electric power

systems and hazardous environments; lightning detection in avionics and mining; fiber optic communications systems; non-contact probing of high-speed integrated circuits; biomedical engineering and instrumentation; and charge measurement in photocopiers and ion neutralization systems.

The innovative integrated optic voltage sensor employs reverse poling technology that permits the use of simple electrode structures for high voltage sensing without the need for voltage division. The design eliminates electrical isolation problems between the high voltage system and the control system. The sensor and the optical fibers are immune to electromagnetic interference, thus yield accurate measurements over a wide dynamic range.

SRICO's fiber optic voltage sensor offers improved accuracy in voltage measurements.

